

## **ABSTRACT OF THE DISCLOSURE**

An apparatus and method for optimizing multiple access satellite and terrestrial mobile communications network performance using random access or multiple access protocols such as frequency division multiple access (FDMA), random access, code division multiple access (CDMA), or optimally, time division multiple access (TDMA) protocols. Performance is optimized through the use of persistence algorithms in congestion control methods for random access channels in such a network, whereby mobile terminal participation is eliminated from the congestion control procedure. In one aspect, a fixed network dynamically directs the operation of a mobile terminal-based persistence algorithm using only locally derived information which is directly transformed into an accurate estimate of random access channel throughput.